2 µg of total U. A sample from the SPP DG, therefore, is now represented by a volume that is much smaller (and therefore, potentially less representative) than was the case before closure. For example, the sample supplied to LANL for the 2007 analysis was reported to contain a total U concentration of 62 µg/L, meaning only approximately 32 mL of sample could be shipped for this location. (For well 99405, with a reported total U concentration of 439 µg/L, the sample volume would need to be even smaller, not quite 5 mL.) Clearly, in an area known to contain anthropogenic U, the effects of a small quantity of this anthropogenic U—potentially in the form of a solid particle, as the sample of water from the SPP DG that was provided to LANL was not field-filtered—could cause a shift in the isotopic signature from predominantly natural to anthropogenic.

Additional data will be collected from the SPP DG to further explore isotopic U variability at this location. Assuming weather conditions permit, in 2008 samples will be collected to represent both lower-flow and higher-flow conditions at several locations, including the SPP DG. Although the mechanism(s) responsible for the variations noted above may not be identified, the resulting data will help to refine the U signature at this location.

Regrading at the VC Plume Source Area

Following significant snowmelt and precipitation events, several large puddles were typically present in the area of the IHSSs thought to be the source of the VC Plume. As noted above and discussed in K-H (2004a), of all Rocky Flats this area represents that most conducive to natural biodegradation of VOCs. This is due to the reducing conditions of groundwater here, presumably a result of the decaying vegetation in this buried valley.

The presence of lingering puddles in this area caused a concern that relatively oxygen-rich surface water would infiltrate the ground and hamper continuing anaerobic biodegradation of residual parent VOCs, which might result in expansion of this plume and a change to a more parent compound-rich contaminant characteristic. Therefore, in 2007 the area was regraded, with soil excavated from nearby FC-1 (thereby simultaneously improving the gradient there) and spread on the surface generally around wells 33502, 33604, and 33703. The intent of this regrading effort was to force rain and snowmelt to drain off the area into FC-1 and FC-2, rather than collect in puddles over an area of residual subsurface VOC contamination. See Section 2.7.3 for additional information on the regrading work.

3.2 Air Monitoring

3.2.1 Introduction

Air monitoring and emissions assessments have been performed at the Site since the Site began operations in the early 1950s. The Site has historically been subject to 40 CFR 61, Subpart H which specifies radionuclide air emissions limitations and monitoring requirements for DOE facilities. However, following decommissioning and environmental restoration activities pursuant to RFCA (CDPHE et al 1996), completed in fall 2005, the remaining DOE-retained lands are no longer a “facility” as defined in 40 CFR 61.91(b). Consequently, 40 CFR 61, Subpart H, no longer applies.

Air monitoring is not required as part of the CERCLA remedy; however, it is currently performed so that data can be available if needed during the early post-closure period.

The Site operates two high-volume, size-fractionating ambient air samplers located east of the Site along Indiana Street. The sampling locations are shown on Figure 3-237. These two locations on Indiana Street (S-136 and S-138) are downwind of the Site under prevailing higher-speed winds and in locations where typically the highest potential dose would be expected to occur from wind-eroded Site sources, based on modeling using representative meteorological conditions. These two downwind locations are those that would be appropriate to measure Site emissions based on the alternative compliance demonstration guidance given in EPA's *Guidance on Implementing the Radionuclide NESHAPs* (EPA 1991) under conditions of continuous fugitive dust emissions.

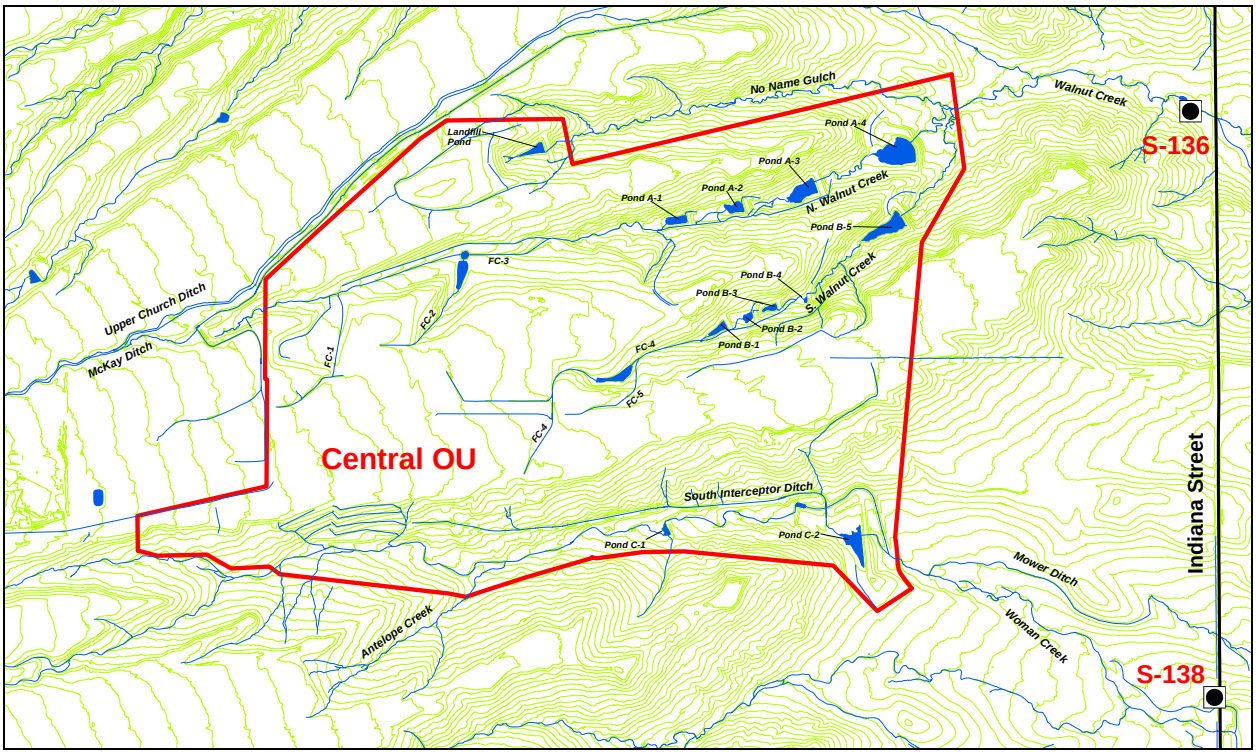

Figure 3-237. CY 2007 Air Sampling Network

The ambient air samplers continuously collect both fine and coarse particulate matter fractions on filters and removable impactor surfaces that were exchanged and analyzed on a monthly schedule through September 2006. The samples were analyzed for the Pu, Am, and U isotopes that represent most of the radioactive materials handled at or residing on the Site. These isotopes account for all materials that have the potential to contribute 10 percent or more of the dose to the public.

In October 2006, following a year of continuous monthly sampling and observation, routine analysis of air monitoring filters was suspended at all sampling locations. The samples from two of the locations (S-136 and S-138) are still collected on a continuous monthly sampling schedule, but are archived without analysis pending review of Site activities and identification of activities

that are potentially able to cause significant air emissions. In the absence of large-scale soil disturbances in specific areas, potential air emissions from the Site would be expected to remain near or below their detection limit in the samples and would not be measured.

3.3 Ecological Monitoring

3.3.1 Introduction

The Ecology Group conducts ecological monitoring of the Site's ecological resources to ensure regulatory compliance and to preserve, protect, and manage those resources. Ecological monitoring is an integral aspect of determining whether the management objectives and goals for the natural resources at the Site are being achieved. This report summarizes the results of the ecological monitoring that was conducted at the Site during 2007.

At an elevation of approximately 6,000 feet, the Site contains a unique ecotonal mixture of mountain and prairie plant species resulting from the topography of the area and its proximity to the mountain front. The POU, the area surrounding COU (the general area where the former IA was once located), is one of the largest remaining undeveloped tracts of its kind along the Colorado Piedmont. A number of plant communities present at the Site have been identified as increasingly rare and unique by the Colorado Natural Heritage Program (CNHP 1994, 1995). These communities include the xeric tallgrass prairie, tall upland shrubland, wetlands, and Great Plains riparian woodland communities. Small inclusions of a number of other increasingly rare plant communities are also found on the Site. Many of these communities support populations of increasingly rare animals as well, including the federally protected PMJM, and other uncommon species such as the grasshopper sparrow, loggerhead shrike, Merriam's shrew, black crowned night heron, hops blue butterfly, and Arogos skipper.

During 2007, transfer of the POU was made to USFWS to create the Rocky Flats National Wildlife Refuge. As a result, the total acreage managed by DOE-LM is now approximately 1,308 acres in the COU. However, ecological monitoring was conducted by DOE in the POU prior to the transfer; the POU monitoring is also discussed in this report.

A summary of the highlights from the 2007 field season is provided in the following sections. Full, detailed summaries and analyses for each field monitoring effort are presented as stand-alone reports on the accompanying Ecology DVD.

3.3.2 Vegetation Monitoring

Vegetation monitoring reported here is conducted at the RFS to provide information necessary for management of the natural resources. Objectives of the vegetation monitoring in 2007 were to:

- Identify any new plant species records for the Site;
- Identify and document infestations of select noxious weeds at the Site to assist with planning of noxious weed control applications;
- Document and track the locations where herbicide applications were conducted in 2007;
- Document where revegetation activities were conducted in 2007;